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Research Article

Fostering learner autonomy through explicit metacognitive strategy instruction: A study in the Omani EFL context

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This research paper explores the effectiveness of Metacognitive Strategy Instruction [MSI] in enhancing the listening skills and autonomy of adult EFL learners in the advanced level of university preparatory studies in Oman. Utilizing a quasi-experimental design, the study involved an Experimental Group [EG] and a Control Group [CG], each comprising 24 students. The EG received MSI, while the CG did not, allowing for a comparative analysis of their listening performances and metacognitive strategy awareness. The study employed a mixed-method approach, incorporating both quantitative and qualitative data. Quantitative data, gathered through pretest and posttest along with the Metacognitive Awareness Listening Questionnaire, assessed the impact of MSI on students' listening skills and metacognitive strategy awareness. Qualitative insights were derived from informal, semi-structured interviews with EG participants, focusing on their experiences and perceptions of MSI. Findings revealed that postintervention, the EG showed significant improvements in listening skills and metacognitive strategy awareness compared to the CG. Specifically, the EG demonstrated notable advancements in planning and evaluation, directed attention, person knowledge, and problem-solving skills. However, both groups continued to rely heavily on mental translation, indicating a persistent dependence on their native language. The study underscores the potential of MSI in fostering learner autonomy and enhancing listening competencies in the Omani EFL context. It advocates for the integration of metacognitive strategies into the language curriculum, specialized teacher training, and the provision of accessible learning resources. The findings particularly highlight the importance of MSI in promoting autonomous learning behaviors, such as planning, monitoring, and evaluating one's own learning process. By enhancing metacognitive strategy awareness, MSI empowers students to take charge of their language learning, thereby increasing their self-efficacy and autonomy. The research suggests that targeted MSI can significantly contribute to the development of L2 learner autonomy in listening. It also recommends further investigation into MSI's long-term effects on promoting autonomy in other language skills and fostering overall learner autonomy in various educational contexts.

Keywords: Learner autonomy; Listening skills; Metacognitive strategies; Metacognitive strategy instruction; Self-efficacy

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1. Introduction

Listening plays a vital role in second language acquisition [SLA], and it is one of the essential skills in language learning. Listening comprehension is one of the critical predictors of linguistic proficiency as learners need to be able to understand spoken language and therefore rely heavily on listening comprehension in order to interact effectively in the target language (Field, 2008; Goh, 2000; Vandergrift, 2004). It is also regarded as a crucial factor in wider skill building of communicative and intercultural competence and understanding (Alkhelaiwi, 2023; Cao & Lin, 2020; Goh, 2000; Xu & Huang, 2018; Zeng & Goh, 2018). In both ESL and EFL contexts, the value of listening has been immensely highlighted (Goh & Vandergrift, 2021; Vandergrift & Goh, 2012) as proficiency in listening contributes to learners' motivation and confidence in using the target language (Rost, 2011). Listening can help promote appreciation for linguistic diversity as listeners can be exposed to a variety of accents in the target language. Furthermore, the development of listening skills is essential not only for language acquisition but also for the enhancement of other language skills, emphasizing the significance of addressing listening difficulties faced by L2 learners (Vandergrift, 2007). Therefore, the necessity of improving foreign or second language listening has garnered substantial attention considering the significance of English in the current globalized world (Field, 2019) and the teaching and learning context in Oman is no exception to it.

In the context of Oman, the importance of improving L2 listening skills is underscored by the country's strategic emphasis on English as a key component of its educational system. Similar to the challenges faced by L2 learners in listening in other EFL contexts (Diora & Rosa, 2020; Goh, 2017; Purwanto et al., 2021), Omani students face difficulties such as pronunciation variations, pace, delivery style, personal factors like motivation and learning styles, environmental conditions like background noise and audio quality, and limited exposure to authentic English listening environments outside the classroom (Vellanki et al., 2022).Such factors cause great difficulty for learners and highlight the need for more focused efforts by teachers to improve the learner's listening performance (Saraswaty, 2018; Sari & Fithriyana, 2019). Al Busaidi (1997) and Al Balushi (2017) highlight the distinct cultural and educational factors in Oman, such as the prevalence of traditional rote learning methods and limited access to advanced language learning technologies, further complicate the development of effective listening skills.

Graham and Santos (2015) highlight that many listening difficulties stem from learners' inability to effectively utilize prior knowledge and top-down information, with common issues including segmenting speech, recognizing words more by spelling than pronunciation, and not grasping the general meaning of spoken text despite knowing individual words. Moreover, personal factors like frustration, anxiety, low self-confidence, and demotivation worsen these listening comprehension challenges (Siegel, 2013). L2 learners face multifaceted listening difficulties, including challenges in understanding momentary input, accents, speech rates, and vocabulary (Li, 2013). Learners often have better reading comprehension skills than listening comprehension skills, underscoring the need for targeted interventions to improve listening abilities (Vandergrift, 2007). Previous research has discovered that factors such as listeners' metacognitive awareness (Vandergrift & Tafaghodtari, 2010), use of listening strategies (Goh, 2008; Vandergrift, 2004), motivation (Vandergrift, 2005), anxiety (Elkhafaifi, 2005), linguistic complexity, and the length of the input text (Brunfaut & Revesz, 2015), and task response complexity of the elicited response (Bloomfield et al., 2010) affect L2 listening comprehension. Many researchers have tried to evaluate the influence of these factors from the viewpoints of listeners, listening input, and teachers (Vellanki et al., 2022).

Teaching listening doesn't receive as much attention as needed in L2 classrooms, contributing to the challenge of developing effective listening comprehension skills. Some instructors do not approach listening with a "well-organized methodology" and clear, effective pedagogical objectives (Siegel, 2015). While there has been significant progress in recognizing the importance of listening skills in ESL and EFL contexts, incorporating effective and efficient listening strategies into the curriculum remains a challenge (Altuwairesh, 2021; Berne, 2008; Jesus, 2022). This can be attributed to various factors including limited teacher training, insufficient resources, and the

inherent complexity of listening as a skill. Another issue in teaching listening is the lack of explicit strategy-based instruction, particularly metacognitive strategies, which are crucial for enhancing student autonomy and boosting listening abilities. Consequently, students may not receive explicit instruction in metacognitive strategies on how to develop these crucial skills (Bermillo & Aradilla, 2022; Robillos & Bustos, 2022; Vellanki et al., 2022; Yuan & Chunrong, 2023).

Research suggests that metacognitive strategies play a crucial role in addressing listening challenges, as they enable learners to control listening input strategically and enhance their listening performance (Bozorgian, 2014). The use of a metacognitive pedagogical cycle, which includes activities like reflections on successful listening factors and vocabulary pre-listening exercises, has been effective in enhancing L2 listening outcomes (Vellanki et al., 2022). Additionally, targeted practice in L2 listening instruction, with a focus on metacognitive strategies, plays a key role in enhancing listening expertise (Altuwairesh, 2021). Many researchers opine that it is imperative to incorporate metacognitive strategy instruction [MSI] to foster the development of listening abilities and learner autonomy (Kobayashi, 2018; Payaprom, 2022; Robillos & Bustos, 2022; Taguchi, 2017; Xu et al., 2021). Strategy-based instruction has proven to be essential in developing learner autonomy and improving listening, creating a conducive learning environment. Incorporating explicit MSI in teacher training programs can significantly benefit both teachers and students by enhancing listening skills and fostering autonomy in language learning (Fathi & Hamidizadeh, 2019).

In tertiary education context in Oman, listening comprehension problems among students persist, particularly in the General Foundation Program [GFP], which spans four levels over two years before enrolling in their chosen specializations in degree or diploma courses. Despite extended exposure to English in both schools and the GFP, students continue to struggle with their listening skills. This ongoing issue highlights the need for more effective teaching strategies and resources tailored to the Omani educational context. A study by Al Busaidi (1997) exploring the problems that Omani students encounter in listening skills included some issues related to teaching instruction and other aspects affecting listening comprehension such as the speed of delivery, accent, etc. He proposed specific strategies that teachers could implement to assist students in overcoming these listening comprehension obstacles. In the same context of Omani students, Al Balushi (2017) noted that low performance of students in listening is because of their lack of strategic preparation and suggested that a strategy-based instruction may prove to be an effective alternative to the traditional method of teaching listening in Omani schools.

Hence, it is imperative that language teachers be aware of the factors that affect L2 listening comprehension, recognize the importance of teaching listening skills - especially strategy-inclusive instruction - and provide the necessary support to help learners enhance their listening skills, ultimately fostering learner autonomy. Although many studies have been conducted on the relationship between MSI and learner autonomy, not much has been done in the context of Oman. Moreover, cultivating learner autonomy among Omani learners would help them contribute towards Oman's vision of modernization of education in near future. Therefore, in the light of the above discussion, the study aims to find out if explicit MSI in listening can foster learner autonomy among L2 learners in Omani context.

The study addresses the following research questions:

RQ 1) Does MSI affect L2 learners' metacognitive strategy awareness and its use?

RQ 2) What is the impact of explicit MSI on students' performance in listening comprehension in classes as well as in listening tests?

RQ 3) How does MSI promote learner autonomy in listening from the perspectives of students?

2. Literature Review

2.1. Strategies in Listening: Cognitive and Metacognitive Strategies

Listeners often struggle with comprehending longer and more complex texts, such as lectures and detailed explanations. To overcome these challenges, students can utilize different learning

strategies as they advance (Siegel, 2015). Learning strategies have been categorized in various ways by researchers. Oxford (1990) defines learning strategies as "specific actions taken by the learner to make learning easier, faster, more enjoyable, more self-directed, more effective, and more transferable to new situations" (p. 8). She categorizes them into cognitive, memory, compensation, metacognitive, social, and affective strategies. In contrast, O'Malley and Chamot (1990) classify them into cognitive, metacognitive, and affective strategies. Rost (2011) describes listening strategies as conscious plans to manage incoming speech, suggesting that learners can manage this incoming speech by applying various cognitive and metacognitive listening strategies. Ineffective use of listening strategies is a significant hurdle for students (Hasan, 2000). However, good language learners can positively influence their own and their peers' learning behaviors through effective strategies (Oxford, 1990; Vandergrift, 1999). Chamot (2005) notes that understanding the strategies used by proficient learners can guide less successful learners to adopt new strategies to improve their listening and other language skills.

This discussion will emphasize cognitive and metacognitive strategies, focusing more on the learner's internal cognitive processes than on their social interactions for succeeding in listening. Vandergrift (2003, p. 473) defines cognitive strategies as "mental activities for manipulating the language to accomplish a task," and Goh (2005) describes them as direct strategies including inference, elaboration, and visualization. Richards and Burns (2012) state that cognitive strategies allow learners to manage the content of listening texts, for instance, by activating their background knowledge.

Metacognitive strategies, on the other hand, are those that direct and regulate the learning process (O'Malley & Chamot, 1990; Oxford, 1990). Flavell (1979) coined the term 'metacognition.' Vandergrift and Goh (2012, p. 5) define metacognition as "the ability of learners to control their thoughts and to regulate their own learning." These strategies enable learners to reflect on their thinking and learning, allowing them to adjust their learning for more effective outcomes (Flavell, 1979; O'Malley & Chamot, 1990; Oxford, 1990; Vandergrift, 2004; Vandergrift & Goh, 2012; Wenden, 2001). Learners use metacognitive strategies consciously to manage their learning by planning, checking, and evaluating their cognition (Cohen & Dornyei, 2002).

Vandergrift (2007) highlights that metacognitive strategy use is crucial for understanding differences in listening comprehension among learners. Anderson (2002) advocates integrating these strategies into classroom instruction to stimulate thinking, especially for those with lower proficiency. He identifies five key components: planning, selection and usage, learning strategies, strategy monitoring, strategy coordination, and evaluation of both strategies and outcomes. Rost (2011) and Goh (2008) categorize these strategies into planning, monitoring, and evaluation. Planning includes advanced organization, directed attention, selective attention, and self-management. Monitoring involves comprehension, auditory, and task monitoring, while evaluation assesses performance and identifies problems. Vandergrift and Goh (2012) extend this framework to include problem-solving, highlighting the potential of metacognitive strategies to enhance listening comprehension and learner autonomy. Siegel (2015) notes that familiarity with these strategies improves task performance and builds confidence beyond the classroom.

Research shows that proficient listeners frequently use metacognitive strategies more than less skilled counterparts, who rely on translation or bottom-up listening approaches (O'Malley et al., 1989; Vandergrift, 1997). Vandergrift (2005) links effective listening strategies to comprehension success, distinguishing skilled listeners from less proficient ones. Goh and Hu (2013) and Vandergrift et al. (2006) argue that skilled listeners use various strategies to manage cognitive challenges in processing auditory information. Studies emphasize the importance of metacognitive awareness and strategy use in developing L2 listening skills, showing how this awareness allows learners to plan, monitor, and control their learning effectively (Goh & Hu, 2013; Li, 2013; Vandergrift et al., 2006). This not only enhances listening proficiency but also instills confidence and self-regulation, advocating for a focused improvement in listening skills through

metacognitive strategy training. (Bozorgian, 2014; Robillos, 2019; Vandergrift & Tafaghodtari, 2010; Yeldham & Gruba, 2016).

Overall, it can be inferred from the above studies that employing metacognitive strategies significantly enhances listening comprehension and learner autonomy. Effective strategy use differentiates skilled listeners, fostering improved performance, confidence, and self-regulation in language learning.

2.2. Metacognitive Strategy Instruction in Listening

Research emphasizes the role of MSI in fostering learners' awareness and control over their learning processes. Cohen and Weaver (1998) highlight MSI's capacity to enhance students' engagement through classroom discussions and reflective practices. Research by Ahmadian and Hedayati (2020), Huang and Liu (2020), and Naseri et al. (2019) reveals that explicit MSI notably enhances EFL students' listening performance and comprehension.

Furthermore, teachers often notice that many students unknowingly utilize metacognitive strategies. By incorporating explicit MSI, these unconscious practices can be made conscious, enhancing students' understanding of the terminology of metacognitive strategies and their proper application. This approach enables students to recognize the application and effectiveness of specific strategies in their learning process.

Despite its proven benefits, the teaching of metacognitive strategies has not received much-needed attention from teachers recently (Siegel, 2015; Vandergrift, 2004), because of the challenges in accessing mental processes (Lynch, 2011), the intangible nature of listening skills compared to other language skills (Field, 2008), and multiple factors that can impact listening success.

Research confirms that MSI significantly boosts students' metacognitive awareness, thereby enhancing their listening comprehension and overall listening proficiency (Bermillo & Aradilla, 2022; Goh, 1999; Graham & Macaro 2008; Graham et al., 2008; Maftoon & Alamdari, 2016; Vandergrift, 2003). MSI has shown significant benefits across various EFL settings, with research indicating enhanced metacognitive strategy awareness and improved listening comprehension among students after MSI intervention (Bozorgian & Padiav, 2015; Episiasi et al., 2023; Fathi & Hamizadeh, 2019; Moradian & Baharvand, 2017; Rahimirad & Shams, 2014; Robillos, 2020; Vandergrift & Tafaghodtari, 2010; Vellanki et al., 2022).

A study in Oman (Al-Jahwari et al., 2019) on Grade 11 EFL students further confirmed MSI's positive impact on listening skills and strategy awareness. All these results broaden our understanding of MSI's effectiveness in enhancing listening comprehension through metacognitive strategy application. Nonetheless, a significant challenge is that all teachers might not have adequate knowledge regarding the various strategies and tasks critical for promoting these strategies, which are necessary for developing the subskills and strategies required for proficient listening (Nemtchinova, 2013; Vandergrift, 2003).

Therefore, it is crucial now, more than ever, to prioritize explicit MSI to foster self-reliance and autonomy among learners. Given the significant role of metacognitive strategies in listening, it becomes evident that explicit MSI should be a major component in teaching practices.

2.3. Metacognitive Strategy Instruction and Learner Autonomy

The extensive research on the effectiveness of MSI in improving listening comprehension and learner autonomy among EFL students has concluded that there is a positive correlation between learner autonomy and listening achievement in EFL (Graham, 2011; Rahimi & Abedi, 2014; Taguchi, 2017). MSI seeks to enhance students' comprehension of and control over their cognitive processes by teaching them how to use a variety of metacognitive strategies, such as planning, monitoring, and evaluating their own learning (Flavell, 1979). According to Flowerdew and Miller (2005), listening strategy instruction aims at developing "an awareness of skills related to listening; to use a variety of listening skills effectively in achieving an objective" (p.16).

Learner autonomy refers to the ability of learners "to take charge of their own learning" (Holec, 1981, p. 3) and autonomous learners tend to proactively take charge of their education by setting

goals for themselves and tracking their progress in achieving those goals (Benson, 2007, 2011). Oxford (2020) defines learner autonomy as "a learner's capacity to self-direct his or her own learning process, including goal-setting, problem-solving, choice of learning materials, self-monitoring, and self-evaluation" (p. 241), thus providing a comprehensive view of the autonomous learning process. Following this, Dörnyei (2021) posits learner autonomy as "the degree to which learners are capable of taking charge of their own learning and regulating their own learning behavior" (p. 329), thereby highlighting the regulatory aspect of autonomy in learning.

Because autonomous learners are more likely to engage in self-directed learning activities and effectively employ metacognitive strategies, they have been found to have better listening comprehension (Benson & Voller, 1997). Similarly, Vandergrift and Goh (2012), Lee and Lee (2020) and Ishikawa and Takeuchi (2022) discovered a positive correlation between the use of metacognitive strategies and learner autonomy among various EFL learners. They also discovered that the effectiveness of metacognitive strategy use in English listening comprehension is directly proportional to the learner's proficiency level and their autonomy.

Strategy-based instruction, according to Rahimirad and Zare-ee (2015), is crucial to develop learner autonomy, and by teaching students to use metacognitive strategies, teachers can help them become more self-regulated and independent learners who are better equipped to take responsibility for their own learning. Vellanki et al. (2022) conclude, on the basis of teachers' perceptions of MSI during remote teaching (RT), that using metacognitive strategies in listening is something many students overlook, a practice that could have empowered them to become independent learners. In addition, some other researchers have also investigated how L2 listening strategy instruction affects learners' listening comprehension and showed that strategy instruction plays a significant role in students' self-efficacy (Kobayashi, 2018; Payaprom, 2022; Rahimirad & Zare-ee, 2015; Robillos & Bustos, 2022; Xu et al., 2021), impacts their strategy use and, in turn, makes them autonomous learners. Bermillo and Aradilla (2022), and Taguchi (2017) discovered notable distinctions in the listening comprehension performance of students who received MSI in enhancing their listening comprehension. These studies indicated that exposure to MSI benefited the treatment groups by raising their average scores and found that highly autonomous learners performed better on a listening comprehension test than less autonomous learners.

These studies collectively indicate that effective application of metacognitive strategies by students, following explicit instruction of MSI, results in enhanced listening comprehension and increased learner autonomy. In addition, learners possessing higher degrees of autonomy excelled in listening comprehension, especially after receiving explicit MSI, compared to those with lower levels of autonomy. Considering the benefits of MSI in improving learner autonomy, this paper seeks to contribute to the existing body of knowledge by demonstrating the effectiveness of explicit MSI in enhancing metacognitive strategy awareness and listening comprehension among EFL students. This study will explore various aspects of learner autonomy, as discussed above, including goal-setting, self-monitoring, self-evaluation, problem-solving, choice of learning materials, regulation of learning behavior, self-directed learning activities, and the use of metacognitive strategies (Benson, 2007; Dörnyei, 2021; Flavell, 1979; Oxford, 2020). The present study has linked these aspects to broader themes such as independent learning, confidence, motivation, reflection, and collaborative learning, demonstrating their importance in fostering autonomy in listening. By bridging the gap between theory and practice, this study seeks to provide evidence supporting the integration of MSI in EFL instruction, eventually fostering learner autonomy.

3. Methodology

3.1. Research Design

This study aims to explore the impact of Metacognitive Strategy Instruction [MSI] on the listening comprehension skills and development of learner autonomy of students in the General Foundation Program [GFP]. The study adopted a quasi-experimental design with a mixed-method approach

for data triangulation, to enrich the analysis. Along with combining the benefits of both quantitative and qualitative data, this approach gives us the chance to triangulate both types of data collected from different sources while minimizing the drawbacks of both approaches. Capitalizing on the strengths of both data types, the study provides a more in-depth understanding of MSI's outcomes and highlights multiple viewpoints (Creswell, 2012; Creswell & Creswell, 2018; Creswell & Plano Clark, 2011). Quasi-experimental designs are particularly useful in educational research where random assignment is often impractical or unethical. In the context of ESL/EFL research, quasi-experimental designs have been effectively utilized to study MSI and its impact on listening skills and learner autonomy. For example, previous studies have employed pretest-posttest control group designs to measure improvements in listening comprehension and strategy use (Rahimi & Abedi, 2014; Taguchi, 2017). The research was conducted by three researchers: two teachers who were responsible for teaching the Experimental Group [EG] and Control Group [CG], and one additional researcher. Among them, the first two were involved in teaching the target students, collecting data through questionnaires and pre/posttests. The EG group tutor was involved in the MSI intervention (which lasted for 13 weeks), face-to-face informal interviews and taking notes during/after lectures. The study was conducted over 13 weeks during a regular academic semester.

3.2. Context and Participants

Convenience sampling technique was used in this study as the participants were readily available to the researchers and were willing to participate (Creswell, 2012; Etikan et al., 2016). This sampling technique was chosen as the groups were pre-assigned to the researchers and the groups were representative, comprising mixed-ability students in terms of age, proficiency, and gender. This diversity helped mitigate biases, ensuring the sample reflects the broader population. Transparency and objectivity by the researchers in reporting, observation and assessment further addressed potential biases of this type of sampling, enhancing the study's validity.

This study involved 48 male and female students, aged between 18 and 20, from two Level 4 (advanced) GFP groups. The two groups did not significantly differ in terms of their language proficiency, meaning both groups performed similarly overall. However, within each group, there were students with varying levels of listening comprehension ability. The EG consisted of 15 male and 9 female students, who received explicit MSI, whereas the CG consisted of 10 male and 14 female students that did not receive explicit MSI. The student participants were native speakers of Arabic and had a similar primary and secondary education background. All of them had studied English at school for around 12 years before enrolling in the GFP, which is a four-semester preparatory program designed to improve students' English language skills for further studies in their specializations.

3.3. Ethical Considerations

Prior to data collection, ethical considerations were addressed to ensure the integrity of the research process. First, formal consent of university administration was obtained, followed by seeking consent from the students participating in the research, ensuring the anonymity and privacy of the data and the participants. In addition to the formal ethics approval process, the control group received the standard listening instruction strategies typically used in the curriculum, ensuring they were not deprived of effective teaching methods. The control group was not placed in a disadvantageous situation, as they continued to receive standard instruction that supported their learning needs. The regular instructional strategies employed were sufficient to facilitate their listening comprehension, thereby minimizing any potential negative impact from not receiving explicit MSI instruction.

3.4. Data Collection and Analysis

A variety of data sources were employed for data collection and triangulation, given that listening comprehension and metacognition are internal processes that cannot be directly observed. These

processes were measured through interviews and class discussions, all of which were documented by the EG group tutor during and after lectures. Initially, both EG and CG were evaluated using the Metacognitive Listening Awareness Questionnaire [MALQ] (Vandergrift et al., 2006) and a baseline listening pre-test. Subsequently, only the EG received the MSI. The foreign language learners' metacognitive awareness and perceived use of strategies in listening comprehension were evaluated for both the groups using the MALQ. Strategies such as problem-solving, planning and evaluation, translation, person knowledge, and directed attention were evaluated through the questionnaire. Post-intervention, a listening assessment was conducted for both groups to evaluate the effectiveness of MSI on the EG and to compare the results of the EG with those of the CG. Additionally, a follow-up MALQ was administered to both groups to gauge changes in metacognitive strategy awareness and usage. MALQ was administered in English, accompanied by a translation in their mother tongue to ensure students understood the questionnaire well and gave answers based on the Likert-scale choices.

To achieve data triangulation and gain a multifaceted understanding of MSI's impact, interviews with the EG were conducted by the EG group tutor as qualitative data, alongside the quantitative assessments. To explore the impact of MSI on learner autonomy in listening, as well as to assess students' awareness, perceptions and use of metacognitive strategies, informal interviews were conducted, using a semi-structured interview guide, with the EG to facilitate open-ended and in-depth discussions. The semi-structured nature of the interviews allowed for flexibility in conversation, enabling participants to express their thoughts freely while still focusing on key aspects of MSI and learner autonomy.

To ensure the validity and relevance of our interview guide, it underwent a validation process by three language experts, who are well-versed in language pedagogy and metacognitive strategies. Their invaluable feedback was instrumental in refining the interview questions, ensuring they were well-structured to understand how MSI influences students' autonomous learning and strategy use in listening tasks. The informal and semi-structured approach of the interviews was pivotal in creating an open and engaging environment, encouraging candid and detailed responses, which significantly enriched our qualitative data analysis. The qualitative data was analyzed using a thematic approach. Themes were identified from the interviews, and students' responses were categorized accordingly. The aspects of planning, monitoring, self-assessment, and problem-solving related to MSI were investigated. Questions related to planning focused on how learners set their listening objectives and planned their listening activities. Monitoring questions examined how learners tracked their listening progress and adjusted their strategies. Self-assessment questions investigated how learners evaluated their own listening performance. Problem-solving questions explored how learners approach and solved listening comprehension challenges. For learner autonomy, the interviews explored aspects such as independent learning, confidence, motivation, reflection, and collaborative learning. For example, independent learning was explored through questions on how students set their own listening objectives and chose their listening materials. Students were also asked how they monitored their progress, evaluated their performance and solved challenging listening tasks to understand how these practices improved their confidence. To investigate motivation, strategies students used to stay motivated during listening practice were explored. Reflection was addressed by asking how students reflected on their progress and outcomes. Collaborative learning was explored through discussions on how students worked with peers to solve listening problems and engage in shared activities. While specific guiding questions were used to initiate discussion on these themes, the semi-structured nature of the interviews meant that follow-up questions were tailored to the individual responses, making the response of each interviewee unique.

Along with the semi-structured interviews, students' notes, predictions, comments, reflections, opinions, and discussions in listening classes during the whole intervention process were noted down by the EG group tutor. In addition, data from informal class discussions was also taken into account. This additional qualitative data provided the researchers with insights into students' use

of various metacognitive strategies during listening tasks. The semi-structured interviews allowed for in-depth exploration of individual student experiences and perceptions, while the informal class discussions captured spontaneous and collaborative aspects of learning in a more natural setting. Both sets of qualitative data were treated through thematic analysis to identify common themes and patterns. The researchers familiarized themselves with the data by reading through the notes taken during the interviews multiple times to gain an initial understanding of the content and identify significant features related to planning, monitoring, self-assessment, problem-solving, and the aspects of learner autonomy. These features were then grouped into possible themes. The identified themes were reviewed and refined to ensure they accurately captured the data and addressed the research questions. The final themes were categorized into two main areas: MSI and learner autonomy, as explained in the previous paragraph.

For triangulation, qualitative data from interviews and class discussions were compared and contrasted with quantitative data from assessments and surveys. For example, to understand the reasons behind the improved test scores, the test results and the responses from the interviews were compared. Similarly, notes taken during the class discussions were compared with the interview notes to determine if metacognitive strategy use helped students become autonomous learners by taking more responsibility for their learning, such as through planning and engaging in self-directed activities. In addition, MALQ responses were compared with the notes taken during the interviews to determine if students evaluated their own listening performance and changed their strategies when they found the listening tasks difficult. This triangulation aimed to validate the findings and provide a more in-depth understanding of the impact of MSI on learners' listening performance and autonomy. The combination of multiple data sources ensured a comprehensive evaluation of MSI's role in developing learner autonomy in listening.

3.5. Procedures

The experimental group was offered MSI in listening classes using Vandergrift's (2004, p.11) task sequence. Different pedagogical stages regarding how to listen were explained to students, as the stages corresponding to "metacognitive, process-based approach" represent real-life listening (Goh, 2002; Vandergrift, 2003; Vandergrift & Tafaghodtari, 2010, p. 470). Appendix 1 shows the stages of the task sequence and the underlying metacognitive strategies.

The lessons delivered to the EG were taken from the prescribed coursebook Pathways 3: Listening, Speaking and Critical Thinking (Chase & Johannsen, 2012). Metacognitive learning strategies were incorporated in lesson plans followed in listening classes. At the start of the intervention, students were explained what metacognitive strategies were and how these strategies could help them approach the tasks effectively. During the lessons, students employed metacognitive strategies under the explicit guidance of the teacher. Then, students reflected on their use of metacognitive strategies at the end of the task. The lessons culminated in discussions and reflections related to the metacognitive strategies students used, areas of difficulty, and a plan to address such difficulties in the following listening lessons without the help of the teacher. The purpose of these class discussions was to increase students' awareness of metacognitive strategies, enabling them to use these strategies independently. This, in turn, promotes independent learning, motivation, reflection, and collaborative learning, all of which are essential aspects of learner autonomy. At times, as this EG comprised of mixed ability students, these class discussions were comparatively more helpful for low proficient students to get a comprehensive understanding of metacognitive strategy use in listening.

4. Findings and Discussion

In this section, the impact of the MSI on students' awareness and use of metacognitive strategies, particularly in listening, will be examined. First, the changes observed in both the experimental and control groups before and after the intervention will be analyzed, addressing the research question of how MSI affects metacognitive strategy awareness. Second, the implications of MSI on

learner autonomy will be explored through qualitative data collected from interviews and class discussions, focusing on how MSI fosters independent learning. Finally, the overall effectiveness of MSI in enhancing listening comprehension and metacognitive strategy use will be evaluated, considering the research question of MSI's role in improving listening skills. This section will conclude by acknowledging the study's limitations, providing a comprehensive overview of the findings and their significance.

4.1. Students' Metacognitive Strategy Awareness and its Use, and the Impact of MSI

This section examines the impact of MSI on the awareness and use of metacognitive strategies in language learning, particularly listening, based on the Metacognitive Awareness Listening Questionnaire before and after the intervention in both the experimental group and control group and evaluates the effectiveness of MSI in enhancing student awareness of metacognitive strategies and their listening comprehension skills.

4.1.1. EG and CG before the intervention

Both experimental and control groups demonstrated a low level of metacognitive strategy awareness, as shown in Table 1, in all factors except 'mental translation' [M=3.29 (EG) and 3.26 (CG)] and problem solving [M=3.21 (EG) and 3.17 (CG)]. The low mean scores in planning-evaluation, directed attention, and person knowledge [M=2.55, 2.57, 2.50 (EG) and M=2.49, 2.52, 2.45 (CG), respectively] highlight a general lack of self-regulation and strategic listening among learners before the intervention. It can be inferred that the use of 'mental translation' by students in listening classes indicates their over reliance on their native language as they are not fluent or comfortable enough to process the target language directly. This reliance might also indicate that learners are struggling when trying to handle complex listening tasks in a second language, which leads them to focus on translating the language instead of directly understanding it. Reliance on this strategy, as empirically observed by the researchers, could be a sign of low confidence and limited real-life exposure to the target language, which results in slowing down the development of the required skills to comprehend the target language. It can be inferred that mental translation acts like a distracting process in listening, especially for low-level learners. Instead of focusing on understanding the passage directly, these learners spend cognitive effort translating it into their first language. Zhai and Aryadoust (2022) also concluded that such unnecessary translation can overload students' limited working memory and shift their attention to individual words and sentences, making it harder for them to grasp the overall meaning of what they hear. Similarly, the relatively high scores in problem solving could be attributed to students' dependence on other fellow students during listening tasks or their familiarity with the listening tasks (such as true/false, multiple-choice, gap-filling questions) as empirically observed by the researchers. The slightly higher scores in problem-solving strategies suggest that while learners may face challenges with direct language comprehension, they may compensate through contextual guessing, which indicates a partial application of higher-order thinking skills despite their limited metacognitive strategy awareness, as observed by Vellanki et al. (2022). Additionally, the reliance on peer support could be another contributing factor, though it does not directly involve higher-order thinking. Mean score comparison between experimental and control groups shows no notable difference in metacognitive strategy awareness before the intervention, confirmed by an independent samples *t*-test. Table 1 presents the results of independent samples *t*-tests across five MALQ categories, revealing *p*-values ranging from .610 to .854, which exceed the standard significance level of .05. This suggests that the mean score differences between the groups are statistically insignificant.

Table 1
Independent samples t-test of EG and CG before the intervention

Factors	*EG before MSI*		*CG before MSI*		*t*	*df*	*p*
	Mean	*SD*	*Mean*	*SD*			
Planning – evaluation	2.55	0.37	2.49	0.41	0.513	46	.610
Directed attention	2.57	0.42	2.52	0.33	0.478	46	.635
Person knowledge	2.5	0.52	2.45	0.36	0.317	46	.752
Mental translation	3.29	0.63	3.26	0.38	0.185	46	.854
Problem solving	3.21	0.71	3.17	0.52	0.269	46	.789

4.1.2. EG before and after the intervention

As can be seen from the Table 2, it is clear that there are significant differences between the mean scores in the experimental group before and after the MSI intervention, with all *p*-values well below the .05 threshold in the paired samples *t*-test. Specifically, significant improvements are observed in planning-evaluation, directed attention, person knowledge, mental translation, and problem-solving, as indicated by the increased mean scores in all categories. These results are consistent with those of Al Jahwari et al. (2019), and Maftoon and Alamdari (2016) who reported that students in the experimental group showed a statistically significant increase in metacognitive listening awareness following MSI. These results also align with those of Robillos and Bustos (2022) and Vandergrift and Tafaghodtari (2010), who also found improvements in similar metacognitive factors, which suggests that the intervention effectively enhances these key areas of listening awareness. This consistency across studies reinforces the validity of our findings and the efficacy of metacognitive strategy instruction in improving listening skills.

The paired sample *t*-test results (see Table 2) also confirm that MSI intervention had a statistically significant impact on all five categories of MALQ. These findings suggest that the MSI intervention was highly effective in enhancing the metacognitive strategy awareness of Omani EFL learners, which may translate in improved listening comprehension. The increased scores in planning-evaluation and directed attention indicate that learners became more adept at organizing their listening tasks and maintaining focus, which are crucial skills for successful listening. The rise in person knowledge reflects a better understanding of their own learning processes and challenges, which facilitates more tailored strategy use. Meanwhile, the higher scores in mental translation and problem-solving suggest that learners were able to better manage their cognitive resources and apply strategies to overcome comprehension difficulties, even though mental translation still remained a strong strategy. This aligns with the findings of Episiasi et al. (2023) that learners who excel in mental translation are likely employing effective cognitive strategies to enhance their listening comprehension.

Table 2
T-test results regarding the metacognitive awareness of L2 listening reported by experimental group learners before and after the MSI intervention

Factors	*EG before MSI*		*EG after MSI*		*t*	*df*	*p*
	Mean	*SD*	*Mean*	*SD*			
Planning – evaluation	2.55	0.37	3.72	0.5	10.758	23	< .001
Directed attention	2.57	0.42	3.67	0.64	8.208	23	< .001
Person knowledge	2.5	0.52	3.55	0.39	7.181	23	< .001
Mental translation	3.29	0.63	3.88	0.73	4.210	23	< .001
Problem solving	3.21	0.71	3.62	0.65	3.502	23	.002

These results offer valuable insights into the effectiveness of MSI in developing the awareness and use of specific metacognitive strategies for a better understanding of listening. Similar findings have been reported in the literature, where targeted interventions have been shown to significantly improve learners' metacognitive awareness and strategy use, thereby enhancing their listening performance (Vandergrift & Goh, 2012; Cross, 2011). The effectiveness of MSI in this context underscores the importance of explicit instruction in metacognitive strategies for L2 listening, particularly for learners who initially demonstrate low levels of strategy awareness.

4.1.3. EG and CG after the intervention

Table 3 shows that after the MSI, significant differences found in mean scores for Planning and Evaluation, Directed Attention, Person Knowledge, and Mental Translation between the experimental and control groups indicate a notable impact of MSI on metacognitive strategy awareness and usage. The experimental group exhibited substantial improvements in these areas, reflecting the effectiveness of the MSI intervention in enhancing learners' ability to plan, evaluate, direct their attention, and understand their learning processes. Similar results were observed by Maftoon and Alamdari (2016) and Kobayashi (2018). These results are further validated by Anaktototy (2022), Daskalovska et al. (2022), and Zhang et al. (2022), who emphasized the importance of incorporating MSI in regular listening courses to enhance both listening comprehension and metacognitive awareness in learners. It can be seen from Table 3, which shows the independent samples *t*-test results, that the p-values for these factors are below .05, which is statistically significant. Specifically, there are statistically significant differences in Planning and Evaluation (t = 5.915, p < .001), Directed Attention (t = 4.282, p < .001), Person Knowledge (t = 3.404, p = .001), and Mental Translation (t=3.122, p=.003). However, the category Problem-Solving does not exhibit a statistically significant change (t = 1.666, p = .102), indicating that the intervention's effect on this specific aspect is inconclusive. This lack of significant change in problem-solving suggests that while the MSI intervention did address learners' problem-solving abilities to a certain extent, students still need to practice using these strategies for further improvement. The intervention effectively developed awareness and application of several key strategies, but ongoing practice and reinforcement are necessary to fully enhance problem-solving skills in the listening context. The results indicate a significant positive impact of an intervention on several categories when comparing an Experimental Group and a Control Group post-intervention. This outcome corresponds with the studies of Al Jahwari et al. (2019) and Maftoon and Alamdari (2016), which reported notable increase in metacognitive listening awareness and use among students following MSI. Similarly, the impact observed aligns with the research of Goh and Hu (2013) and Vandergrift and Tafaghodtari (2010), who documented enhanced performance in listening comprehension due to MSI. Additionally, these results echo those of Bermillo and Aradilla (2022), and Robillos and Bustos (2022), both highlighting a positive relationship between metacognitive awareness and listening comprehension.

Table 3
T-test results regarding the Metacognitive awareness of L2 listening reported by experimental and control group learners after the MSI intervention

Factors	*EG after MSI*		*CG after MSI*		*t*	*df*	*p*
	Mean	*SD*	*Mean*	*SD*			
Planning – evaluation	3.72	0.5	2.81	0.56	5.96	46	< .001
Directed attention	3.67	0.64	2.93	0.55	4.28	46	< .001
Person knowledge	3.55	0.39	3.06	0.58	3.40	46	.001
Mental translation	3.88	0.73	3.33	0.48	3.12	46	.003
Problem solving	3.62	0.65	3.31	0.63	1.67	46	.102

From the above statistics, it can be inferred that initially, both groups displayed a low level of metacognitive strategy awareness, with a notable reliance on 'mental translation,' indicating a dependency on native language due to low proficiency in the target language. Post-intervention, the experimental group showed significant improvements in Planning & Evaluation, Directed Attention, and Person Knowledge and Mental Translation as evidenced by *p*-values below .05. However, 'Problem-Solving' showed no significant change.

The CG displayed no significant changes in comparison with the EG in metacognitive awareness across all factors post-intervention, probably indicating a lack of exposure to metacognitive strategies, which might have limited their ability to improve in these areas. The findings highlight MSI's effectiveness in enhancing specific metacognitive strategies for better listening comprehension, except for a higher reliance on mental translation and problem-solving. While further practice is needed in problem-solving and reduced reliance on mental translation, the overall positive impact of the intervention is evident. This outcome is in line with Vandergrift (2006), who emphasized that successful listeners must learn to avoid mental translation strategies, as these can hinder effective listening. Mental translation is a counterproductive strategy and it often occurs when less-proficient listeners rely too heavily on literal processing of aural information due to limited lexical, grammatical, and syntactic knowledge (Goh & Hu, 2013). Consistent with previous research by Zhai and Aryadoust (2022), our findings suggest that minimizing mental translation is crucial for becoming a more proficient listener.

4.2. Impact of Explicit MSI on Students' Performance in Listening Comprehension

4.2.1. Before MSI intervention – EG and CG

Before the MSI intervention, both the Experimental Group and Control Group exhibited similar listening skills, as indicated by the group statistics. The mean scores of EG and CG were 14.33 and 13.17, respectively, with a negligible difference in standard deviations. The independent samples *t*-test, showing a *p*-value of .218, suggests no significant difference between the groups' scores prior to the intervention. This similarity in performance establishes a reference point for assessing the impact of MSI and shows no statistical significance (see Table 4).

Table 4
Score differences before the intervention among groups

	N	*Mean*	*SD*	*SE (Mean)*	*t*	*df*	*p*
Score							
Experimental Group	24	14.33	3.32	.68	1.248	46	.593
Control Group	24	13.17	3.16	.64			

This initial similarity in performance between the two groups is crucial as it establishes a baseline from which the impact of the MSI intervention can be accurately measured. Since both groups started with comparable listening skills, any subsequent differences in performance following the intervention can more confidently be attributed to the effects of the MSI rather than to initial differences in abilities. It helps to fairly judge how well the intervention works. This baseline equivalence enhances the validity of the study's findings, allowing for a clearer assessment of how effective the MSI intervention was in improving the listening comprehension skills of the students in the EG compared to those in the CG. To ensure comparability, the pre-test mean scores of both groups were analyzed, and Levene's test was used to confirm the equality of variances, as was followed by Vandergrift and Tafaghodtari (2010), and Fathi and Hamidizadeh (2019). This step was crucial because, without this established equivalence, it would be challenging to determine whether the observed improvements were genuinely due to the intervention or simply a reflection of initial group differences.

4.2.2. After MSI intervention – EG and CG

After implementing MSI, a notable change in listening comprehension was observed in the EG. The EG's mean score increased to 16.33, while the CG's mean was 14.12, which indicates a substantial improvement in performance. In contrast, the CG also showed an increase in mean score, but it was less pronounced, rising from 13.16 to 14.12. This difference in improvement highlights the impact of the MSI intervention on the EG's listening skills. In addition, the Independent Samples *t*-test revealed a significant difference between the groups post-intervention with a p-value of .031. The *p*-value indicates that the observed difference in mean scores between the EG and CG after the intervention is statistically significant, confirming that the MSI intervention had a more positive influence on the EG's listening comprehension skills compared to the CG (see Table 5). These results correspond with the findings of similar studies in the literature (Bozorgian & Padiav, 2015; Fathi & Hamizadeh, 2019; Moradian & Baharvand, 2017; Robillos, 2020; Vandergrift & Tafaghodtari, 2010; Vellanki et al., 2022). These studies collectively reinforce the effectiveness of MSI across different contexts and learner groups, confirming its value in both improving listening comprehension and raising metacognitive awareness.

Table 5
Score differences after the intervention among groups

	N	*Mean*	*SD*	*SE (Mean)*	*t*	*df*	*p*
Score							
Experimental Group	24	16.33	3.96	.81	2.225	46	.031
Control Group	24	14.13	2.82	.58			

4.2.3. Before and after MSI intervention – EG

Within the EG, a substantial improvement in listening performance post-MSI intervention was noted. The mean scores rose from 14.33 to 16.33, which shows a clear enhancement in the students' listening comprehension abilities. The paired samples *t*-test indicated a significant increase in scores ($p < .001$), with a mean difference of 2.0. This indicates that the MSI intervention led to a measurable and positive change in the listening skills of the students (see Table 6).

Table 6
Score differences in EG

	N	*Mean*	*SD*	*SE (Mean)*	*t*	*df*	*p*
Score							
Before the intervention	24	14.33	3.32	.68	5.390	23	< .001
After the intervention	24	16.33	3.96	.81			

Additionally, a high correlation value (.890) between pre- and post-test scores signifies a consistent and positive impact of MSI on listening skills within the EG. The high correlation also implies that students who performed well before the intervention continued to do so afterward, but with an overall uplift in their performance, while those who initially struggled still benefited from the intervention, although to varying extents as pointed out by Al Jahwari et al. (2019), Vandergrift and Tafaghodtari (2010) and Vellanki et al. (2022). This suggests that MSI is effective not only in enhancing overall performance but also in reinforcing the existing skills. Furthermore, the intervention appears to provide a scaffold that helps all learners, regardless of their starting point, to achieve better outcomes in listening comprehension. These findings reinforce the idea that MSI should be an integral part of language instruction to maximize its benefits.

The overall analysis indicates the effectiveness of MSI in enhancing listening skills. Initially, there was no significant difference between the EG and CG, providing a comparable baseline. Post-intervention, the EG demonstrated significant improvement in listening skills compared to the CG, emphasizing the positive impact of MSI. Within the EG, the marked improvement from pre- to post-intervention further underscores the efficacy of MSI in reinforcing listening

competencies. These findings highlight the value of MSI as an instrumental tool in enhancing listening skills in educational settings and correspond to the findings of the previous studies (Bozorgian & Padiav, 2015; Episiasi et al., 2023; Fathi & Hamizadeh, 2019; Moradian & Baharvand, 2017; Rahimirad & Shams, 2014; Robillos, 2020; Vandergrift & Tafaghodtari, 2010), where the experimental group underwent MSI intervention performed better than the control group because the former used metacognitive strategies.

4.3. MSI and Learner Autonomy

This discussion, based on the qualitative data from informal interviews with students and class discussions recorded as notes by the EG group tutor, focuses on MSI's key role in enhancing students' listening skills and promoting learner autonomy. It is pertinent to note that the following quotes represent the students' direct responses, with only minor grammatical adjustments made by the researchers.

MSI significantly impacts students' approach to listening exercises. A student described, " Now, before every listening lesson, I set goals, like focusing on names, places, numbers, stress, and tone of the speaker" (S19). This highlights MSI's role in encouraging students to engage in effective planning and goal-setting, thereby cultivating the traits of learner autonomy and enhancing their listening skills. This focused approach, as exemplified by the student, leads to more strategic listening and better comprehension.

MSI also significantly aids in guiding students to actively employ available resources for enhancing their learning. A student shared, "I try to go through the lesson beforehand, focus on tough words in pre-listening vocabulary exercises, and use the dictionary to find meanings" (S23). This illustrates how MSI encourages students to prepare ahead, identify potential challenges, and utilize online tools such as dictionaries for complex vocabulary. Such proactive behaviors encouraged by MSI enable students to lead their learning process, utilizing resources to overcome challenges and enhance understanding. The researchers empirically observed that, during the intervention, students showed a tendency to look for resources, thus demonstrating self-reliance in solving their problems in listening comprehension. These findings are consistent with similar studies (e.g., Bermillo & Aradilla, 2022; Kobayashi, 2018; Payaprom, 2022; Rahimirad & Zare-ee, 2015; Robillos & Bustos, 2022; Taguchi, 2017; Xu et al., 2021), which resulted that MSI fosters a sense of autonomy in learners by encouraging them to actively engage with available resources. The researchers believe that this shift towards self-directed learning is crucial, as it not only improves immediate comprehension but also equips students with lifelong learning skills.

One more student highlighted the significant role MSI plays in aiding students in monitoring their progress and performance in listening tasks as follow:

> I usually stop and try to remember what I heard, check my notes and the important words in the listening exercise, and ask myself questions to make sure I understand it. In class, I try to answer the teacher's questions or the ones in the activities from the book (S8).

This self-reflective practice, fostered by MSI, enables students to actively evaluate their understanding through summarization, note comparison, and self-questioning. Additionally, engaging with the teacher's questions and exercises provides a practical application of their listening skills, further reinforcing their ability to track and assess their learning progress, which is an essential characteristic of an autonomous learner (Dörnyei, 2021; Oxford, 2020).

Another student's experience illustrates the pivotal impact of MSI in shaping students' perception of their listening performance:

> I think I improved a lot because now I have started checking and comparing my answers to listening tasks with my friends and, then, with the teacher, to make sure that they are correct. When I do it without the help of the teacher, my results are like I do with the teacher. In this way, I feel more confident about my learning (S6).

This way of thinking by students, encouraged and cultivated by MSI, involves actively cross-checking answers and seeking confirmation of answers, leads to an enhanced awareness of

students' skill level. Such self-assessment and comparison, both with peers and instructors, not only improve accuracy but also boost the student's confidence in their listening abilities.

MSI significantly aids students in identifying and addressing problems in listening tasks by fostering self-awareness and developing different learning approaches. For instance, as one student notes, "I try to focus more on context, keywords and guess what the answer could be. And, if I cannot understand for the first time, I read the questions again, then listen and check my answers" (S9). The response demonstrates how MSI instils learner autonomy and teaches learners to hone in on critical elements and employ re-evaluation strategies when initial understanding is unclear.

According to Oxford (2020) and Dörnyei (2021), self-evaluation is one of the vital characteristics that sets autonomous leaners apart from other learners, which is reflected in a student's comment, "I have been able to know my weaknesses and the problems that I usually face in listening. Based on that, I changed my strategy, for example, making notes while listening has helped me a lot" (S4). This highlights the role of MSI in enabling students to recognize their personal challenges and adapt their strategies, like note-taking, to enhance comprehension. Similarly, some other students elaborate on specific pronunciation challenges, underscoring how MSI guides them to pinpoint specific difficulties and seek targeted practice. For example, a student said, "I start by understanding what kind of questions I am getting wrong. This helps me focus on the information necessary to answer the questions" (S13). MSI helps students assess themselves continuously and fine-tune their focus for improved listening comprehension, as a student put it succinctly, "Now, I am able to understand what and when to focus on and evaluate how well I understand the listening" (S21). Similarly, another response reinforces the idea that MSI plays a key role in helping students evaluate and enhance their listening performance.

> During the midterm exam, I used the metacognitive strategies learnt in the class. For example, I tried to predict from the given questions and the context in instructions as to what the listening could be about and found that strategy useful in improving my understanding and answering questions (S2).

MSI helps in strategically selecting resources tailored to individual needs and targeting specific areas of weakness.

> I choose resources based on the problems I face, for example, to focus on days, dates, months, spellings of names, etc., I use online resources. In addition, I focus more on the last part of the listening test (cloze passage) as it has been a problem for me for quite a while (S18).

MSI significantly enhances students' ability to plan and evaluate their approach to listening tasks, thereby improving their performance. A successful strategy mentioned by some students was to plan to ask questions before the listening task at hand. This includes asking about the topic, their existing knowledge, and what they aim to learn, both before and after listening. By doing so, they effectively identify key aspects of the task, such as the main idea, important details, and specific vocabulary. Furthermore, they assess their understanding and reflect on the strategies used, identifying what was effective. This approach not only enhances their performance but also boosts their confidence, fostering their ability to work independently.

The above student responses demonstrate how MSI equips students with practical tools, such as prediction based on context and questions, which not only facilitate a deeper understanding of the listening material but also improve their ability to answer questions accurately. This proactive approach, encouraged by MSI, enables students to assess their listening skills in real-time and adapt strategies that directly contribute to learner autonomy and, in turn, their academic success. The ability to adjust learning tactics is crucial for fostering long-term academic growth, as it helps students become more adept at handling diverse listening tasks. Moreover, MSI's emphasis on listening not only boosts comprehension but also builds confidence in learners, empowering them to take control of their own learning. These benefits are well-documented in the literature, which reinforces the critical role of MSI in developing autonomous, successful learners (Graham, 2011; Ishikawa & Takeuchi, 2022; Kobayashi, 2018; Lee & Lee, 2020; Payaprom, 2022; Rahimi & Abedi, 2014; Rahimirad & Zare-ee, 2015; Robillos & Bustos, 2022; Taguchi, 2017; Xu et al., 2021).

Promoting effective revision, motivation, resource identification, and planning are areas greatly improved through MSI. This improvement eventually enhances students' listening performance and leads to learner autonomy. A student shared his thoughts in the following way, "I do the given listening exercises and look for more similar listening exercises online and practice on my own. This gives me confidence and reduces my stress, especially in listening and helps me perform well in listening" (S20). Another student added, "As told by the teacher, I try to do timed-practice at home so that I understand whether I am able to answer all questions correctly in the given time" (S7). Another student mentioned that practice activities on MyELT (a web-based learning platform) helped her to monitor her progress and understanding of listening tasks. These responses highlight how MSI encourages self-driven practice and utilization of diverse resources, leading to improved skills and increased confidence. Another critical component of successful listening is time management skills, which can be enhanced by MSI as students plan, monitor, evaluate and try to solve their problems using the available resources within the given time. These benefits of MSI conform to the results of the studies by Rahimi and Abedi (2014), Kobayashi (2018), Irgin and Erten (2020), Xu et al. (2021) and Payaprom (2022).

Students' experiences mentioned in this section reflect how MSI empowers learners with tools and awareness to identify their listening challenges, adapt strategies accordingly, and ultimately enhance their listening proficiency, focusing on areas that require attention, and leveraging appropriate resources for practice and self-improvement. Overall, the students responded positively to the MSI, gaining confidence, satisfaction, motivation, and a keenness to learn. This aligns with the findings of Robillos & Bustos (2022), who emphasized that MSI, when implemented through a structured pedagogical cycle, is more effective in improving listening comprehension in EFL learners, which in turn enhances self-regulation and critical thinking.

This positive attitude towards MSI correlated with improved listening skills and strategy use. Although immediate perfection in listening comprehension wasn't achieved by all participants, lack of motivation, low proficiency and prescribed syllabus are some challenges that need to be addressed to reap the optimal benefits of MSI. Overall, the instruction fostered autonomy, self-regulation, and confidence, essential for future listening success.

Overall, with reference to whether MSI affects L2 learners' metacognitive strategy awareness and use, the study demonstrated that MSI significantly enhances L2 learners' metacognitive strategy awareness and use, improves listening comprehension, and promotes learner autonomy. Initially, both groups displayed low levels of metacognitive strategy awareness, with a notable reliance on 'mental translation.' Post-intervention, the experimental group showed significant improvements in all except 'Problem-Solving.' Regarding the impact of explicit MSI on students' performance in listening comprehension in classes as well as in listening tests, the control group showed no significant changes, highlighting the effectiveness of MSI in enhancing specific strategies. Additionally, the experimental group exhibited substantial improvement in listening skills compared to the control group, reinforcing MSI's positive impact. Relating to how MSI promotes learner autonomy in listening, from the students' perspectives, MSI promoted learner autonomy by equipping them with tools and awareness to identify listening challenges, adapt strategies, and enhance proficiency. This empowerment fostered confidence, motivation, and self-regulation, essential for future success in listening comprehension, despite challenges such as lack of motivation and low proficiency.

5. Conclusion

This study contributes to the field of language education by demonstrating the efficacy of MSI in improving metacognitive awareness and autonomous learning, particularly in listening skills, within the Omani EFL setting. This section addresses the impact of MSI on metacognitive strategy awareness and use, its influence on listening comprehension performance, and its role in promoting learner autonomy in listening.

The integration of MSI has shown a noticeable impact on fostering autonomous learning among students, particularly in enhancing listening skills. MSI equips students with a framework for self-regulation, encompassing planning, monitoring, and evaluating their listening processes. Students have reported actively engaging in pre-listening planning, such as setting goals and anticipating content, which steers them towards a more focused and goal-oriented approach. Additionally, during listening tasks, students employ monitoring strategies like paying attention to specific details and self-questioning, which aids in maintaining engagement and assessing comprehension in real-time.

The results indicated by MALQ data before and after the intervention in EG suggest that awareness levels of students increased considerably as the mean score of each category increased. However, this awareness did not translate proportionally in students' improved performance in the post-intervention listening test. This can be attributed to multiple factors such as lack of interest, test construction, test anxiety, insufficient practice and persistent reliance on mental translation. Moreover, low-proficient learners were not able to practically apply these strategies effectively as increased awareness does not always directly translate into performance.

The significance of MSI is further underscored in the post-listening phase where students evaluate their performance, reflecting on the effectiveness of the strategies employed. This reflective practice not only helps in consolidating learning but also in adjusting strategies for future tasks, thereby promoting a continuous learning cycle. The qualitative data from student responses resonate with these aspects, illustrating how MSI has transformed their approach to listening tasks, making them more proactive, strategic, and confident in their abilities.

Moreover, the quantitative analysis pre- and post-MSI intervention, particularly in the experimental group, reveals significant improvements in various aspects of metacognitive awareness and strategy use. This empirical evidence aligns with the qualitative insights, confirming the efficacy of MSI in enhancing students' metacognitive skills and, consequently, their autonomous learning capabilities.

The findings of the study are in line with the earlier research which showed a substantial improvement in the listening performance of the experimental group compared with that of the control group, which could be attributed to the comprehensive and all-encompassing nature of the metacognitive approach (Li et al., 2022). Moreover, the qualitative results indicate that participants have embraced the intervention and expressed positive views on how employing listening strategies has enhanced their listening task performance. This supports the study conducted by Robillos and Bustos (2022), which focused on improving learners' listening skills and metacognitive awareness through metacognitive strategy instruction.

Overall, enhancing students' listening skills involves structured pre- and post-listening discussions. Initially, students predict content and strategize for anticipated challenges. Post listening, they evaluate strategy effectiveness and factors impacting comprehension. This reflective approach enables strategic skill development. Teachers can facilitate this by modelling techniques and providing scaffolded practices. Additionally, students should reflect on personal experiences, emotions, and listening obstacles, fostering a comprehensive understanding and management of their listening processes. To mitigate students' excessive dependence on mental translation, increased exposure to the target language, and practice in real-life listening contexts can be beneficial.

MSI emerges as a central element in language learning, enabling students to become self-directed learners. By fostering metacognitive awareness and skillful application of strategies, MSI not only enhances specific language competencies but also cultivates an overall sense of autonomy, confidence, and adaptability in learners, essential for their academic and personal growth. Attaining a higher level of metacognitive awareness through MSI can transform students into lifelong learners who are ready to embrace responsibilities and might exhibit greater capacity for self-regulated learning.

6. Limitations

The study's limitations primarily revolve around its scope and methodology. Firstly, the reliance on self-reported data in qualitative analysis could introduce subjective biases. Secondly, the absence of random assignment in forming experimental and control groups might affect the generalizability of the findings. Thirdly, the sample size was relatively small, with 24 participants in each group, which may limit the robustness of the results. Additionally, the study was conducted over a 13-week semester, which included time for both teaching and assessment, potentially affecting the depth of the intervention and qualitative data extraction. Lastly, the study focuses exclusively on listening skills and is specific to Omani Arab EFL learners, limiting its applicability to other language skill areas or broader educational contexts.

7. Educational Implications

The research on MSI in the Omani EFL context underscores several critical implications for enhancing English language education.

Firstly, it advocates for the integration of MSI into the EFL curriculum, emphasizing the development of students' metacognitive abilities alongside language skills within coursebooks, as teachers often overlook this aspect due to its time-saving convenience. Consequently, as suggested by Mekhoukh (2022), the primary focus should be on the teaching methodology itself. Teachers are encouraged to integrate a metacognitive strategy-based approach into the course materials they use, whether it be existing textbooks or any other resources, to enhance the effectiveness of listening instruction. This integration necessitates specialized teacher training programs that focus on imparting effective MSI techniques and fostering student-centered learning environments.

Additionally, the study highlights the need for accessible educational resources that support the application of metacognitive strategies, including interactive tools and self-assessment materials. Recognizing the unique cultural context of Oman, teaching methodologies should be adapted to resonate with local cultural norms while promoting autonomous learning.

Lastly, this research paves the way for further studies to explore MSI's long-term impact and its interaction with cultural factors, thereby enriching the pedagogical practices in the Omani EFL landscape and contributing to the overall goal of improved language proficiency and learner independence.

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Appendix 1. Listening instruction stages and related metacognitive strategies

Stages of Listening Instruction	Related Metacognitive Strategies
Planning/predicting stage 1. Once students know topic and text type, they predict types of information and possible words they may hear.	1. Planning and directed attention
First verification stage 2. Students verify initial hypotheses, correct as required, and note additional information understood. 3. Students compare what they have written with peers, modify as required, establish what needs resolution and decide on details that still need special attention.	2. Monitoring 3. Monitoring, planning, and selective attention
Second verification stage 4. Students verify points of disagreement, make corrections, and write down additional details understood. 5. Class discussion in which all contribute to reconstruction of the text's main points and most pertinent details, interspersed with reflections on how students arrived at the meaning of certain words or parts of the text.	4. Monitoring and problem solving 5. Monitoring and evaluation
Final verification stage 6. Students listen for information that they could not decipher earlier in the class discussion.	6. Selective attention and monitoring
Reflection stage 7. Based on discussion of strategies used to compensate for what was not understood, students write goals for next listening activity.	7. Evaluation

Note. Adopted from Vandergrift (2004).